S/193/60/000/011/019/022
A004/A001

On the Introduction of the ЭИ-937 (EI-937) Grade Steel in Mechanical Engineering

khozyaystvennogo mashinostroyeniya (Scientific Research Institute of Tractor and Agricultural Machine Construction).

Card 3/3

SAMOYLENKO, G. I.

Elastic and flexible sensitive instrument elements. Biul.tekh.-ekon.inform. no.11:67-68 '60. (MIRA 13:11)
(Instrument manufacture)

SAMOYLENKO, G.; GOREV, K.

Improving the quality of electric insulators. Biul.tekh.-ekon. inform. no.5:80 '61. (MIRA 14:6)
(Electric insulators and insulation)

SAMOYLENKO, G.I.

Mechanization and automation of coal mining processes in mines of Moscow Basin. Biul.tekhn.-ekon.inform. no.12:61 '60.
(MIRA 13:12)

(Moscow Basin--Coal mines and mining)
(Automation)

SAMOYLENKO, G.I.; GORNV, K.M.

All-Russian conference on the introduction of multiple machining of parts in the machinery industry. Biul.tekh.-ekon.inform. no.1: 70-72 '61. (MIRA 14:2)

(Machine-shop practice)

SAMOYLENKO, G.I.

Fulfillment of the state plan for the development and introduction of new industrial equipment into the national economy by individual economic councils of the R.S.F.S.R. Biul. tekh.-ekon. inform. no. 2:70-71 '61. (MIRA 14:2)

(Industrial management)

SAMOYLENKO, G.I.; GOREV, K.M.

At the "Krasnyi Mai" Plant and the Leningrad Plant of Decorative Glass. Stek. i ker. 18 no.2:40-41 F '61. (MIRA 14:3)
(Leningrad--Glass manufacture)

SAMOYLENKO, G.I.; GOREV, K.M.

In the State Scientific and Technical Committee of the Council of Ministers of the R.S.F.S.R. Tekst.prom. 21 no.3:89-90 Mr '61. (MIRA 14:3)

(Textile machinery—Research)

SAMOYLENKO, G.I.; GOREV, K.M.

Using wood of decidious trees. Biul.tekh.-ekon.inform. no.3:69-70 '61. (MIRA 14:3)
(Hardwoods)

SAMOYLENKO, G.I., inzh.

Testing TSV-2 cars. Torf. prom. 38 no.6:18 '61. (MIRA 14:9)

1. Radovitskoye transportnoye upravleniye Moskovskogo oblastnogo soveta narodnogo khozyaystva.
(Peat industry—Equipment and supplies)

SAMOYLENKO, G.V., prepodavatel'.

Station for artificial insemination at a veterinary zootechnical school. Zhivotnovodstvo 20 no.5:85-88 My '58. (MIRA 11:5)

1. Pisarevshchanskiy vetzootekhnikum, Poltavskaya oblast'.
(Poltava Province--Artificial insemination)

SAMOYLENKO, I.

Inspection of lightning arrestors. Pozh.delo 8 no.4:10-11 Ap '62. (MIRA 15:4)
(Lightning protection) (Fire prevention--Inspection)

SAMOYLENKO, I.I. (Barnaul)

Problems and prospects of research in coagulation. Probl. gemat. i perel. krovi 9 no.3:19-21 Mr '64. (MIRA 17:10)

SAMOYLENKO, I.I., kand.ekonomicheskikh nauk

Role of electrification in creating the material and technological foundation of agriculture. Uch. zap. Volg. gos. ped. inst. no.10:187-197 '59. (MIRA 14:11)
(Electrification)
(Volgograd Province—Electricity in agriculture)

BORISOV, Yevgeniy Filippovich; BROVER, Izrail' Moiseyevich, prof.; LARINA, Raisa Yefimovna; MADYANOV, Aleksandr Stepanovich; SAMOYLENKO, Ivan Ivanovich; CHERNYSHEV, Nikolay Tikhonovich

[Reader in economics; precommunist means of production] Khrestomatiia po politicheskoi ekonomii; dokommunisticheskie sposoby proizvodstva. Pod red. I.M.Brovera. Moskva, Gos. izd-vo "Vysshaia shkola," 1963. 378 p. (MIRA 16:7)

1. Prepodavateli kafedry politicheskoy ekonomii Volgogradskogo pedagogicheskogo instituta (for Brover, Larina, Madyanov, Samoylenko, Chernyshev). 2. Vsesoyuznyy zaochnyy finansovo-ekonomicheskiy institut (for Borisov).
(Economics)

SAMOYLENKO, I.S.

Change in the enzymatic activity of the intestinal juice [with summary in English]. Fiziol.zhur. [Ukr] 4 no.4:495-501 Jl-Ag '58 (MIRA 11:10)

1. Institut fiziologii im. A.A. Bogomol'tsa AN USSR, laboratoriya fiziologii pishchevareniya i Odesskiy farmatsevticheskiy institut kafedra biokhimii, mikrobiologii i gigiyeny.
(INTESTINES--SECRETION)
(ENZYMES)

SAMOYLENKO, I.S. [Samoilenko, I.S.]

Heat exchange and motor activity of the small intestine.
Fiziol.zhur.[Ukr.] 5 no.1:124-127 Ja-F '59. (MIRA 12:5)

1. Odesskiy farmatsevticheskiy institut, kafedra biokhimii.
(INTESTINES) (BODY TEMPERATURE)

SAMOYLENKO, I. S.

Doc Biol Sci - (diss) "Heat conditions of the external medium and the functions of the small intestine." Odessa, 1961. 28 pp; (Ministry of Higher and Secondary Specialist Education Ukrainian SSR, Odessa State Univ imeni I. I. Mechnikov); 250 copies; price not given; (KL, 7-61 sup, 226)

KORDYSH, Ye.I.; LIVKE, V.A.; STRUNINA, A.V. Prinimali uchastiye: BOSANYUK, G.P.; GOLOVANOVA, E.V.; SAMOYLENKO, L.N.

Contamination of expansion gases from ammonia production by hydrogen sulfide as a result of occurring biochemical processes. Khim. prom. 41 no. 12:901-902 D '65 (MIRA 19:1)

SAMOYLENKO, L.P.

Cultivation of yeast without supplementary feeding with malt.
Spirt. prom. 24 no.3:31-32 '58. (MIRA 11:6)
(Yeast)

SAMOYLENKO, M., agronom

Use sorters in disinfecting seeds. Zashch. rast. ot vred. i bol. 7 no.12:16 D '62. (MIRA 16:7)

1. Korenovskoye opytnoye khozyaystvo Vsesoyuznogo nauchno-issledovatel'skogo instituta sakharnoy svekly, Krasnodarskiy kray.

(Seeds—Disinfection)

SOV/109-4-6-15/27

AUTHORS: Rovinskiy, R.Ye. and Samoylenko, M.V.

TITLE: Diffusion of Thorium and the Destruction of Thoriated-Tungsten Electrodes in a High Current Discharge in Xenon (Diffuziya toriya i razrusheniye elektrodov iz torirovannogo vol'frama v sil'notochnom razryade v ksenone)

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 6, pp 1018 - 1025 (USSR)

ABSTRACT: The work described was concerned with the investigation of the removal of thorium from thoriated-tungsten electrodes in high current discharges in xenon at ultra-high pressures. The concentration of thorium in various layers of the electrodes was determined by employing the natural α-radio activity of thorium. The experiments were carried out by employing three special tubes, whose electrodes were made from the same thoriated-tungsten rod; this contained 1.5% ThO_2. The tubes operated at a current of 45 A; the first tube was run for two hours, the second for ten hours, the third for eighteen hours and fourth for fifty hours. During the operation the

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Diffusion of Thorium and the Destruction of Thoriated-tungsten Electrodes in a High Current Discharge in Xenon

temperature of the tips of the electrodes was measured by means of an optical pyrometer. The tubes were run at the mains (50 c.p.s.) voltage. After a specified interval of time, the given tube was unsealed, the electrodes were taken out and the content of thorium in the working region of the electrodes was measured. This was done by employing a standard α-particle counter. The temperature distribution along the working portion of the electrodes (Figure 1) was measured by employing a stroboscopic disc. It was found that the temperatures of the electrode tubes were 2300 ± 100 °C. The temperature distribution along the operating region of the electrode was recorded and this is represented in Figure 4. The distribution of thorium along the operating region of the electrode is represented in Figure 5 (for the 4 above tubes). The concentration of thorium as a function of the operating time of a tube is shown in Figure 6. The measurements permitted the determination of the diffusion coefficient for thorium; this was found to be

Diffusion of Thorium and the Destruction of Thoriated-tungsten Electrodes in a High Current Discharge in Xenon

$D = (6 \pm 2).10^{-8}$ cm^2/sec. The value is in good agreement with the results obtained by I. Langmuir (Refs 8,9). The experimental results illustrating the dependence of the concentration of thorium as a function of time could be compared with the solution of a uni-dimensional idealised diffusion problem for a semi-infinite cylindrical rod. The solution of the problem is given by A.N. Tikhonov and A.A. Samarskiy (Ref 10) in the following equation:

$$n = n_o \Phi(z) \qquad (2)$$

where n_o - is the initial concentration and

$\Phi(z)$ - is the error function as defined by Eq (3).

The experimental and theoretical results are compared in

Diffusion of Thorium and the Destruction of Thoreated-tungsten Electrodes in a High Current Discharge in Xenon

Figure 7, where the 'solid' curves represent the theoretical values, while the 'dashed' curves were obtained experimentally (the same as in Figure 6). The diffusion q can be determined from Eq (4'). This equation is used to determine q as a function of the logarithm of time for the layers situated at 0.075 and 0.1 cm from the surface of the electrode. The authors express their gratitude to L.A. Serova and N.F. Pisarenko for their help in the experiments, and to A.V. Nedospasov for the discussion of the experimental results.
There are 8 figures and 10 references, 4 of which are Soviet and 6 English.

SUBMITTED:

Card 4/4

SAMOYLENKO, N.A., inzhener.

Pneumatic transportation of foundry sand. Lit.proizv.no.12:28 D '56.
(MLRA 10:3)
(Sand, Foundry) (Pneumatic-tube transportation)

SAMOYLENKO, N.F.

Scraper conveyer for ash and slag removal with a hydraulic ash gate. Sakh.prom.29 no.6:28-29 '55. (MLRA 9:1)

1.Bobrovitskiy sakharnyy zavod.
(Furnaces)

PONOMARCHUK, A.F., inzh.; SAMOYLENKO, N.M., inzh.

New P-1-75 air drill. Gor. zhur. no.9:55-56 S '62. (MIRA 15:9)

1. Nauchno-issledovatel'skiy gornorudnyy institut (for Ponomarchuk). 2. Rudoupravleniye im. Dzerzhinskogo Krivoy Rog (for Samoylenko).

(Boring machinery)

DENISOV, Nikolay Mitrofanovich; SAMOYLENKO, P., otv. red.; VARNAKOVA, N., red.; RUDINA, G., red.; YURMANOVA, A., red.

[Reinforced-concrete supports and their use in Kuznets Basin mines]Zhelezobetonnaia krep' i ee primenenie na shakhtakh Kuzbassa. Kemerovo, Kemerovskoe knizhnoe izd-vo, 1959. 177 p. (MIRA 15:11)

(Kuznetsk Basin--Mine timbering)
(Reinforced concrete construction)

BYALYY, L.; SAMOYLENKO, S.

In regard to S.I. Samoilenko's article "Optimum control of the parameters of a radio line. Elektrosvias' 15 no.1:72-74 Ja '61. (MIRA 14:3)

(Information theory) (Radio lines)
(Samoilenko, S.I.)

S/062/63/000/003/016/018
B101/B186

AUTHORS: Yegorov, Yu. P., Kirey, G. G., Samoylenko, S. A., Chernyshev, Ye. A., and Tolstikova, N. G.

TITLE: Infrared spectra of unsaturated organosilicon compounds containing a pentamethyl disilyl group

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 3, 1963, 569 - 571

TEXT: The infrared spectra of the compounds $(CH_3)_3SiSi(CH_3)_2(CH_2)_nC{=}CH_2$, n=0, 1, 2, were investigated and the intensity and position of the $\nu_{(C=C)}$ bands were compared with one another. It was found that $\nu_{(C=C)}$ is 1596 cm^{-1} with the vinyl derivative (n = 0) and that it is shifted to 1635 cm^{-1} with the allyl derivative(n = 1); further, that it has maximal intensity with this compound and that it is 1638 cm^{-1} with the γ-butyl derivative (n = 2). The position of the other bands, as $\nu_{(C-H)}$, $\rho_{(CH_2)}$ $\rho_{(CH)}$ differs little from what is usual with alkenyl silanes. According-

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Infrared spectra of ...

ly substitution of the CH_3 group in the trisilyl group of an alkenyl silane by a $(CH_3)_3Si$ group does not entail any qualitative change of the spectrum. There are 1 figure and 1 table.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: October 29, 1962

Card 2/2

L 58304-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM
ACCESSION NR: AP5010045 UR/0368/65/002/002/0154/0159

AUTHORS: Yegorov, Yu. P.; Kirey, G. G.; Samoylenko, S. A.

TITLE: Intramolecular interactions and the characteristic behavior in infrared spectra of some organosilicon compounds

SOURCE: Zhurnal prikladnoy spektroskopii, v. 2, no. 2, 1965, 154-159

TOPIC TAGS: infrared spectrum, silicon derivative, allyl derivative, siloxane, electron interaction, atomic bond, molecular optical parameter, characteristic vibration

ABSTRACT: It is shown on the basis of the behavior of the frequencies and intensities in infrared spectra of allylic derivatives of silicon ($R_{4-n}Si(CH_2CH=CH_2)_n$) that the additivity of the optical and molecular parameters of the characteristic vibrations is approximate, owing to the electron interactions between the unbound atoms. The absorption spectra of the compounds (pure or dissolved in carbon te-

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trachloride) were measured with an infrared double beam spectrophotometer (IKS-14) in cells ranging from 50 to 500 μ in thickness. The layer thickness and the solution concentration were chosen such as to obtain optimal spectrum registration in each case. It is suggested that the comparatively high intensity of the infrared vibration band of siloxanes is a result of a specific electron interaction between a silicon atom and oxygen (d-p conjugation). Original article has: 3 tables

ASSOCIATION: None

SUBMITTED: 25Jul64 ENCL: 00 SUB CODE: OP, OC

NR REF SOV: 010 OTHER: 005

Card 2/2

SAMOYLENKO, S. I.

INFORMATION THEORY

"Optimum Regulation of Parameters of a Radio Line" by S. I. Samoylenko. Elektrosvyaz', No 12, December 1957, pp 3-6.

To increase the amount of information transmitted per unit time under varying transmission conditions, it is possible to employ optimum regulation of the parameters of the radio line, the optimum being dependent on the transmission conditions. A procedure is examined for the construction of optimum-regulation systems in the case of continuous and binary-coded signals. The method is illustrated by an example of optimum regulation of the amplitude threshold level in the transmission of communication coded with a binary code. Reference is made to an article by R. A. Silverman, Transactions IRE, IT-1, No 3, 1955.

Card: 1/1

SAMOYLENKO, S.I.

Preparation of cyclic noiseproof codes and an analysis of their error-correcting capacity. Dokl, AN SSSR 162 no.3 516-519 My '65. (MIRA 18:5)

1. Nauchnyy sovet po kibernetike pri Prezidiume AN SSSR. Submitted December 2, 1964.

L 63882-65 EEC-2/EWT(1)/EEC-4/EED-2/EWA(h) JM

ACCESSION NR: AP5014843 UR/0020/65/162/003/0516/0519

AUTHOR: Samoylenko, S. I.

TITLE: Constructing cyclic noise-immune codes and analyzing their correcting ability

SOURCE: AN SSSR. Doklady, v. 162, no. 3, 1965, 516-519

TOPIC TAGS: cyclic code, error correcting code, noise immune code

ABSTRACT. Cyclic characteristics of square matrices are used for constructing cyclic noise-immune binary codes (J. E. Meggitt, Trans. Inform. Theory, no. 4, 234, 196:). A square matrix (5) is selected which satisfies the conditions of operation of shift registers and precludes the possibility of simultaneous summation of signals arriving from more-than-2 register cells. The method permits searching for and constructing the codes that meet specifications (code-combination length, errors to be corrected, redundancy) and also analyzing the correcting ability of any cyclic codes describable by the above square matrices. Constructing and analyzing various codes can be done by a single method independently of the types of correctible error, number of redundancy signals, and code-combination length; this feature is suitable for code development on computers. Orig. art. has: 20 formulas and 1 table.

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L 63882-65

ACCESSION NR: AP5014843

ASSOCIATION: Nauchnyy sovet po kibernetike pri Prezidiume AN SSSR (Scientific Board on Cybernetics, Presidium, AN SSSR)

SUBMITTED: 26Nov64 ENCL: 00 SUB CODE: DP

NO REF SOV: 002 OTHER: 001

Card 2/2

L 8785-66 EWT(d)
ACC NR: AP5028139 SOURCE CODE: UR/0106/65/000/011/0024/0032

AUTHOR: Samoylenko, S. I.

ORG: none

TITLE: Use of magic squares for error correction (variable-parameter codes)

SOURCE: Elektrosvyaz', no. 11, 1965, 24-32

TOPIC TAGS: error correcting code, magic square

ABSTRACT: Variable-parameter codes based on the properties of generalized magic squares are considered. Not only $\leq N^2$ numbers can be introduced into the generalized magic square but any other numbers, m of them being selected arbitrarily and the rest N^2-m meeting the usual conditions of the numerical magic square. Properties of generalized magic squares are analyzed, and encoding procedures are established. The rate-of-transmission, defined as the

Card 1/2 UDC: 62..391.154

L 8785-66
ACC NR: AP5028139

ratio of transmitted information-carrying symbols to the total number of transmitted symbols, is 0.75 or lower for $2 \leq N \leq 5$ squares; lower rate-of-transmission corresponds to higher error-correcting ability. Decoding and correcting procedures are also examined. The decoding depends on the nature of distortion arising during the transmission: the decoding procedure is more complicated for higher distortions. Encoding and decoding can be performed on digital computers; hence, the above method may prove practical in computer-to-computer information transmissions. Orig. art. has: 9 figures, 9 formulas, and 1 table.

SUB CODE: 09 / SUBM DATE: 31Mar65 / ORIG REF: 002

jw
Card 2/2

L 17844-66 EWT(d)/FSS-2 GS

ACC NR: AT6004694 SOURCE CODE: UR/0000/65/000/000/0123/0128

AUTHOR: Samoylenko, S. I.

ORG: none

TITLE: Transmission of digital information in phase-difference modulation of arbitrary multiplicity

SOURCE: AN SSSR. Institut problem peredachi informatsii. Opoznaniye obrazov. Teoriya peredachi informatsii (Pattern recognition. Theory of information transmission). Moscow, Izd-vo Nauka, 1965, 123-128

TOPIC TAGS: data transmission, binary code, communication channel

ABSTRACT: A. A. Pistol'kors (Izv. elektroprom. slabykh tokov, 1935, No 3, 51) first pointed out the possible use of 180° phase change modulation for binary information transmission. V. A. Kotel'nikov showed that such a modulation is the optimum one in presence of white Gaussian noise. The present paper describes a method for the establishment of correspondence between the values of the binary symbols in an arbitrary number of

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L 17844-66

ACC NR: AT6004694

connected binary channels or the value of symbols of arbitrary base, and the changes in phase of the carrier frequency. This permits the unambiguous transmission of information by means of phase-difference modulation without the need to remember the phase of the preceding signal. The proposed method of transmission is illustrated by functional diagrams of the transmitter and receiver devices for the general case of phase-difference modulation of arbitrary multiplicity. The particular case under investigation transmits three binary channels on one carrier frequency. Orig. art. has: 4 figures.

SUB CODE: 09/ SUBM DATE: 25Sep65/ ORIG REF: 003/ OTH REF: 002

Card 2/2 nst

SAMOYLENKO, V.

SAMOYLENKO, V.

Experimental construction of large-panel apartment houses in Leningrad. Gor.i sel'.stroi.no.10:7-12 O '57. (MIRA 10:12)

1. Upravlyayushchiy trestom No.3 Glavleningradstroya.
(Leningrad--Apartment houses)

SAMOYLENKO, V., starshiy leytenant

We should control the growth of the Communist Youth League.
Komm.Vooruzh.Sil 2 no.12:64-68 Je '62. (MIRA 15:8)

1. Pomoshchnik nachal'nika politicheskogo upravleniya Belorusskogo voyennogo okruga po komsomol'skoy rabote.
(Russia--Army--Political activity) (Communist Youth League)

SAMOYLENKO, V.A., inzhener (st.Belorechenskaya).;BOKLAGOV, P.I., tekhnik (st. Belorechenskaya).

Fastening and maintaining curved track sections. Put' i put. khoz. no.1:36 Ja '57. (MLRA 10:4)
(Railroads--Curves and turnouts)

GREBINSKIY, S.O., POPOVICH, I.V., SAMOYLENKO, V.A.

Effect of X rays on the growth, water absorption, and respiration of seedlings. Nauch. dokl. vys. shkoly; biol. nauki no.3:160-164 '60. (MIRA 13:8)

1. Rekomendovana kafedroy fiziologii rasteniy L'vovskogo gosudarstvennogo universiteta im. Ivana Franko.
(Plants, Effect of X rays on) (Seedlings)

KROMICHEV, V.A.; SAMOYLENKO, V.A.; KOROBAN', G.I., inzh.-mekhanik;
ARTEM'YEV, I.M.; KOLESNIKOV, G.A.

Letters to the editor. Put' i put.khoz. 5 no.4:47 Ap '61.
(MIRA 14:7)

1. Dorozhnyy master st. Magnetity, Oktyabr'skoy dorogi (for Kromichev). 2. Zamestitel' nachal'nika distantsii puti, st. Belorechenskaya, Severo-Kavkazskoy dorogi (for Samoylenko). 3. Stantsiya Belorechenskaya, Severo-Kavkazskoy dorogi (for Koroban'). 4. Nachal'nik otdela puti dorogi, stantsiya Bogotol, Krasnoyarskoy dorogi (for Artem'yev). 5. Nachal'nik sluzhby puti tresta Snezhinantratsit, g. Snezhnoye (for Kolesnikov).

(Railroads)

S/130/63/000/001/005/008
A006/A101

AUTHORS: Kirvalidze, N. S., Dergach, A. Ya., Samoylenko, V. D.

TITLE: Improving heat treating conditions for pipe blanks

PERIODICAL: Metallurg, no. 1, 1963, 27 - 28

TEXT: At the Nikopol' Yuzhnotrubnyy Plant a new method of preheating the metal in continuous and annular furnaces was brought into use. The metal is subjected to intensified heating with natural gas when it enters the furnace; the temperature drops at the furnace end. The temperature of a 1 X18 H9 T (1Kh18N9T) steel blank was 1,160°C in the center of the blank; it was attained when the blank was approximately in the middle of the furnace, where the metal was held for an extended period of time at optimum temperature. Under these heating conditions overheating of the metal was prevented. The specific duration of heating was 8 - 10 min/cm of the blank diameter against 6.5 - 7.0 min/cm previously. Rejects were reduced by about a factor of 1.5 and the efficiency of the unit increased by up to 30%.

ASSOCIATION: Nikopol'skiy yuzhnotrubnyy zavod (Nikopol' Yuzhnotrubnyy Plant)

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L 04313-67 EWP(k)/EWP(h)/EWT(d)/EWP(l)/EWP(v)/EWP(t)/ETI IJP(c) JD/HW

ACC NR: AP6018389 (A) SOURCE CODE: UR/0133/66/000/006/0537/0538

AUTHORS: Borisov, S. I. (Doctor of technical sciences); Verkhovod, V. K. (Engineer); Samoylenko, V. A. (Engineer); Bogatyrev, V. A. (Engineer)

ORG: none

TITLE: Manufacture of eight-finned steel pipes on hydraulic horizontal presses

SOURCE: Stal', no. 6, 1966, 537-538

TOPIC TAGS: metal tube, metal pressing, metal press, metal forming

ABSTRACT: A method for the manufacture of finned steel pipes (for the chemical industry) by using horizontal hydraulic presses was developed at the Southern Pipe Plant Nikopol' (Nikopol'skiy yuzhnotrubnyy zavod). The experimental work was based on theoretical calculations published earlier by V. K. Verkhovod, A. Ye. Pritomanov, and M. I. Chepurko (Issledovaniye protsessa istecheniya metalla pri pressovanii profil'nykh trub, Sb. Proizvodstvo trub, vyp. 14, Izd. Metallurgiya, 1964). The compression stress was calculated after S. I. Borisov and A. Ye. Pritomanov (Analitecheskiy metod opredeleniya usiliya pressovanii stal'nykh trub, Sb. Proizvodstvo trub, vyp. 5, Metallurgizdat, 1961) with the formula

$$P = \left[(\sigma_M - \sigma_T k)\, e^{\frac{4fD_K L_{r.3}}{D_K^2 - d_T^2}} + \sigma_T k \right] F,$$

Card 1/3 UDC: 621.774.38

L 04313-67

ACC NR: AP6018389

6

where σ_M is the tension at the die, σ_T - flow limit of the pipe material, k - a coefficient which depends on the elongation coefficient, f - friction coefficient, D_K - container diameter (175 mm), $L_{r.3}$ - length of compressed bushing, d_T - inner pipe diameter, and F - cross-sectional area of compressed bushing. It was found that the theoretically calculated compression stresses were in good agreement with the experimental data. A schematic of the construction and calibration of the dies is presented (see Fig. 1). A recent order for 48 x 4 mm (with 105-mm fin diameter) pipes has been successfully completed. V. S. Nosko, A. I. Lysenko, O. P. Drobich, A. I. Tyazhel'nikov, N. S. Kirvalidze, and N. S. Yakimenko participated in the experimental work.

SUB CODE: 13 / SUB DATE: none / ORIG REF: 002

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L 04313-67
ACC NR: AP6018389

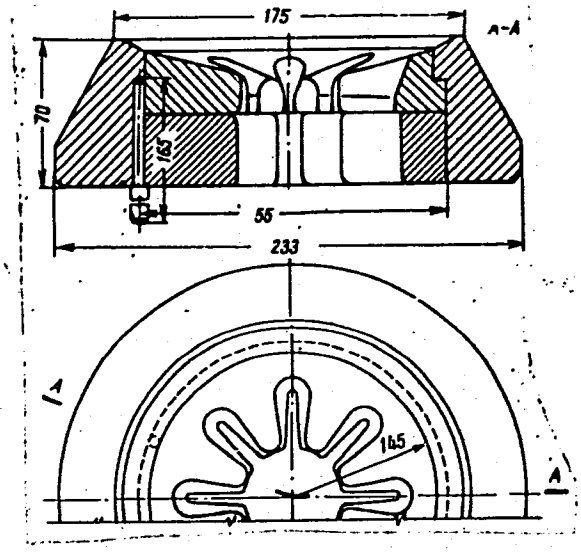

Fig. 1. Construction and calibration of profile die.

Orig. art. has: 3 graphs and 5 equations.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002

Card 3/3

AKIMOVA, Ye.P.; RUDOY, V.S.; SHEVCHENKO, L.N.; NESTEROVA, N.N.;
Prinimali uchastiye: VASILENKO, S.I.; ZUYEV, I.I.; VIL'YAMS, O.S.;
LAGUTINA, R.V.; DERGACH, A.Ya.; KITANENKO, V.P.; KIRVALIDZE, N.S.;
YAKIMENKO, N.S.; SAMOYLENKO, V.D.

Effect of the method of manufacturing EI847 steel on the quality of tubes. Stal' 21 no.12:1113-1114 D '61. (MIRA 14:12)

1. Ukrainskiy nauchno-issledovatel'skiy trubnyy institut (for Akimova, Rudoy, Shevchenko, Nesterova). 2. Nikopol'skiy yuzhnotrubnyy zavod (for Vasilenko, Zuyev, Vil'yams, Lagutina, Dergach, Kitanenko, Kirvalidze, Yakimenko, Samoylenko).
(Steel, Stainless—Electrometallurgy)
(Pipe mills—Quality control)

KIRVALIDZE, N.S.; DERGACH, A.Ya.; SAMOYLENKO, V.D.

Improving conditions of heating a pipe blank. Metallurg 8 no.1:27-28 Ja '63. (MIRA 16:1)

1. Nikopol'skiy yuzhnotrubnyy zavod.
(Pipe mills) (Furnaces, Heating)

CHEKMAREV, A.P., adademik; GRUDEV, A.P., kand. tekh.nauk; TARAN, Yu.N., kand. tekhn.nauk; ZIL'BERG, Yu.V., inzh.; KURILENKO, V.Kh., inzh.; DERGACH, A.Ya., inzh.; LITINSKIY, D.M., inzh.; NESTEROVA, G.V., inzh. SAMOYLENKO, V.D., inzh.

Reducing metal sticking on the rolls during the hot rolling of stainless tubes. Stal' 23 no.7:631-635 Jl '63. (MIRA 16:9)

1. AN UkrSSR (for Chekmarev).
(Pipe mills) (Steel, Stainless)

L 52337-65 EWT(a)/EWP(k)/EWP(h)/EWA(c)EWT(d)/EWT(m)/EWP(b)/T/EWA(d)/EWP(l)/
L 52337-65 EWP(v)/EWP(t) IJP(c) JD/JG

ACCESSION NR: AP5015605 UR/0133/64/000/012/1117/1119

AUTHOR: Kiryalidzo, N.S.(Engineer); Kovshechkin, I.Yu.(Engineer); Kurilenko, V. Kh.(Engineer); Darsach, A.Ia.(Engineer); Gulshchenko, M.P.(Engineer); Samoylenko, V.D.(Engineer)

TITLE: Increasing the productivity of an automatic installation for rolling KhlSN10T tubing

SOURCE: Stal', no. 12, 1964, 1117-1119

TOPIC TAGS: pipe, steel, metal rolling

Abstract: The piercoability of KhlSN10T steel is sharply improved by increasing the mandrel slope up to 11° (critical reduction here reaches 13%, what a a slope angle of 9°—only around 10%).

Laboratory and industrial experiments showed that the mandrel rpm's (in the range of 70-140 rpm) have little effect on the pierceability of this steel. Increasing the number of rpm's of the mandrel made it possible to increase productivity by 15% for high-quality tubing.

Card 1/2

L 52327-65

ACCESSION NR: AP5015685

The main factor, affecting the internal surface quality of casings for a change of rpm, is the degree of strengthening and weakening processes. At substantially high rates of deformation the processes of weakening do not have time to occur and, therefore, a change of rpm of the mandrel in the piercing of Kh18N10T billets does not affect piercability. Orig. art. has 2 figures and 3 formulas.

ASSOCIATION: Nikopol'skiy yushnotrubnyy zavod(Nikopol' Yushnotrubnyy Plant)

SUBMITTED: 00 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 005 OTHER: 000 JPRS

Card 2/2 mb

SAVOYLENKO, V.I., Candidate of Technical Sciences -- (dissertation) "Peculiarities of the operation of semiconductor diodes and triodes at high voltage levels." Mos, 1958, 7 pp (Min of Higher Education USSR. Mos Order of Lenin Aviation Inst im Sergo Ordzhonikidze) 110 copies (KL, 27-58, 112)

SAMOYLENKO, V. I.

V. I. Samoylenok, "Use of the capacity of an n-p junction in radio engineering apparatus." Scientific Session Devoted to "Radio Day", May 1958, Trudrezervizdat, Moscow, 9 Sep 58.

Properties of the capacity of an n-p junction and its radio engineering applications are analyzed. It is remarked that the capacity of n-p junctions (semiconducting capacity) can be used in a train with semiconducting triodes and diodes. A special impurity distribution can guarantee different dependences of the capacity on the voltage and also high values of the differential resistances.

SAMOYLENKO, V.I.

Special features in the thermal behavior of semiconductor junction diodes and triodes associated wit great collector biases. Izv. vys. ucheb. zav.; radiotekh. no.2:173-177 Mr-Ap '58. (MIRA 11:5)

1. Rekomendovana kafedroy teoreticheskikh osnov radiotekhniki Moskovskogo ordena Lenina aviatsionnogo instituta imeni Sergo Ordzhonikidze.

(Transistors)

SAMOYLENKO, V.I.

Amplitude modulation with utilization of the n-p transition capacitance. Nauch.dokl.vys.shkoly; radiotekh. i elektron. no.2:226-232 '58. (MIRA 12:1)

1. Kafedra teoreticheskoy radiotekhniki Moskovskogo aviatsionnogo instituta.

(Modulation (Electronics))

SOV/142-58-4-10/30

AUTHOR: Samoylenko, V.I.

TITLE: Parametric Amplification Using the Capacitance of the p-n Junction (Parametricheskoye usileniye s ispol'zovaniyem yemkosti p-n perekhoda)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Radiotekhnika, 1958, Nr 4, pp 451-458 (USSR)

ABSTRACT: The paper describes the amplification of oscillations by changing parameter of the linear system (capacitance of the p-n junction) under the action of a control signal. Both power and voltage amplification can be achieved by parametric amplification. The amplifier can use either positive or negative feed-back. When selecting parameters, the amplifier can work as a trigger. First the working principle of the parametric amplifier is examined. Formulae for the voltage amplification factor are derived from the relation of the p-n junction capacitance to the bias voltage for alloy-type junction semi-conductor diodes and triodes. The

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Parametric Amplification Using the Capacitance of the p-n Junction

be achieved with current semi-conductor diodes and triodes. Therefore, parametric amplifiers can be used for amplifying frequencies up to 10-15 Mc. Power supply circuit variants are studied. The analysis shows that the parametric semi-conductor amplifier can be used for amplifying dc voltages, video frequencies, with band amplifiers and the creation of various pulse circuits. Parametric amplifiers offer considerable advantages compared with both tube amplifiers and semi-conductor amplifiers. There are 5 sets of circuit diagrams, 8 graphs and 1 non-Soviet reference.

ASSOCIATION: Kafedra teoreticheskikh osnov radiotekhniki Moskovskogo ordena Lenina aviatsionnogo instituta imeni Sergo Ordzhonikidze (Chair for the Theoretical Bases of Radio Engineering, Moscow Order of Lenin Aviation Institute imeni Sergo Ordzhonikidze)

SAMOYLENKO, V.I.

AUTHOR: Samoylenko, V. I.

108-13-5-8/11

TITLE: Theory and Computation of the Frequency Modulators With Application of Semiconductive Control Elements (Teoriya i raschët chastotnykh modulyatorov s primeneniyem poluprovodnikovykh upravlyayushchikh elementov)

PERIODICAL: Radiotekhnika, 1958, Vol 13, Nr 5, pp 64-71 (USSR)

ABSTRACT: Here the frequency variation in the autogenerator by means of the control capacitance of the n-p-transition of the semiconductor diodes and triodes is investigated. This can be applied in a wide frequency range to frequency modulation as well as in case of a reconstruction of the autogeneration. The equation (4) is derived. It expresses the modulation characteristic in the analytical form. For the given semiconductor-device types a maximum possible countervoltage $E_{k\,max}$ exists at which the n-p-transition is not yet destroyed. Above this voltage breakdown takes place. The equation (6) reproduces the limits for the value of the control capacitance. C_{k1}. The equation (7) serves for the

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determination of the frequency overlap. For the given semiconductor-device type C_{k0} is constant. Therefore the frequency overlap of the autogenerator is a function of the transformation factor k . An optimum point for the additional connection of the control element of the concerned type exists at which the frequency overlap is a maximum. To find this point, eq. (7) must be differentiated with respect to k and the derivative must be set equal to zero. An equation of the fourth degree is obtained. In general form this equation cannot be solved. The roots of this equation are found graphically and according to these data the diagrams are constructed from which then the optimum point is obtained. On occasion of designing the frequency modulation with relatively low frequency deviation the control capacitance is to be connected to this point where the maximum steepness of the modulation characteristic is guaranteed. Here this point is determined. The equation (13) for the steepness of the modulation characteristic is derived. From this can be seen which measures must be taken

Theory and Computation of the Frequency Modulators With Application of Semiconductive Control Elements 108-13-5-8/11

for the increase of the steepness of the modulation characteristic. Finally the sequence in the computation of a frequency modulator is shown. There are 4 figures.

SUBMITTED: October 15, 1957

AVAILABLE: Library of Congress

1. Frequency modulators--Analysis

Card 3/3

SAMOYLENKO, V. I.

10 июня

(с 18 до 22 часов)

В. И. Самойленко

Тепловые режимы полупроводниковых приборов.

В. Н. Виноградов

Исследование и расчет температурной зависимости параметров полупроводниковых триодов дрейфового типа.

Ю. Р. Носов,
В. Н. Хазанов

Осуществление температурной стабилизации усилителя напряжения на полупроводниковых триодах различных типов.

М. А. Абдюханов

О зависимости параметров сплавных полупроводниковых триодов от тока эмиттера.

В. П. Фалеева

Шумы в полупроводниковых усилителях.

11 июня

(с 10 до 16 часов)

Г. Н. Берестовский

Статические характеристики и переходные процессы в полупроводниковых триодах при больших сигналах.

Т. Н. Ястребова,
В. Н. Курьянов

Исследование особенностей работы спусковой схемы на плоскостных полупроводниковых триодах при сеточном запуске в зависимости от параметров триодов.

А. Ю. Гордонов

Расчет усилительного каскада на транзисторах.

В. А. Кузьмин

О влиянии режима насыщения в полупроводниковых триодах на работу импульсных схем.

11 июня

(с 18 до 22 часов)

Ю. М. Азьмин,
К. Я. Сенаторов,
С. М. Чуданов

Об объемном заряде и электрическом поле в базовой области сплавного триода.

К. С. Ржевкин

Влияние неоднородности толщины базы на характеристики сплавного триода.

report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORiE), Moscow, 8-12 June. 1959

9(4) PHASE I BOOK EXPLOITATION SOV/1828

Samoylenko, Vitaliy Ivanovich

Osobennosti raboty poluprovodnikovykh diodov i triodov pri bol'shikh napryazheniyakh (Characteristics of the Performance of Crystal Diodes and Transistors at High Voltages) Moscow, Oborongiz, 1959. 53 p. (Series: Moscow. Aviatsionyy institut imeni. Sergo Ordzhonikidze. Trudy, vyp. 103) 18,150 copies printed.

Ed.: K.I. Grigorash; Tech. Ed.: L.A. Garnukhina; Managing Ed.: A.S. Zaymovskaya, Engineer.

PURPOSE: The book is intended for engineers and technicians concerned with the use of crystal diodes and transistors in radio circuits, and also for students of radio engineering vuzes.

COVERAGE: The author investigates the effect of transistor operating conditions on collector function capacitance. He also discusses practical circuits using collector capacitance for frequency modulation, phase modulation, amplitude modulation, parametric amplification, automatic frequency control, and delay line control.

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Data for selecting operating conditions of these circuits are presented, and experimental circuits of P6-A and P6-B junction transistor oscillators are discussed. The author thanks Professor I.S. Gonorovskiy, Doctor of Technical Sciences, V.N. Dulin, A.I. Ivanov-Tsyganov, and A.Ye. Kharybin, Candidates of Technical Sciences, Senior Instructor N.F. Timofeyev, and Engineer V.F. Rakhmanov for reviewing the manuscript. There are 22 references of which 18 are Soviet (including 2 translations) and 4 English.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

RRZ/ad
6-18-59

Card 3/3

9(3) SOV/142-2-1-5/22

AUTHORS: Samoylenko, V.I., and Glotov, I.A.

TITLE: Trigger Circuits Using the p-n Junction Capacitance (Triggernyye ustroystva s ispol'zovaniyem yemkosti p-n perekhoda)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - radiotekhnika, 1959, Vol 2, Nr 1, pp 38-47 (USSR)

ABSTRACT: The authors investigated the application of the p-n transition capacitance of semiconductor junction transistors and diodes in a non-linear LC circuit for designing trigger circuits. They base their investigation on the work conducted at the Kafedra teoreticheskikh osnov radiotekhniki MAI (Chair of Theoretical Principles of Radio Engineering of MAI) /Ref 1/. The authors explain the functioning principle of such a trigger circuit, as shown in figure 2. Further, they analyze the selection of the operating conditions and the operation speed. In figure 4, they show various possible circuit arrangements, and in figure 5, they present an experimental

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SOV/142-2-1-5/22

Trigger Circuits Using the p-n Junction Capacitance

There are 3 circuit diagrams, 3 graphs, 1 oscillogram and 5 references, 1 of which is American and 4 Soviet.

ASSOCIATION: Kafedra teoreticheskikh osnov radiotekhniki Moskovskogo ordena Lenina aviatsionnogo instituta imeni Sergo Ordzhonikidze (Chair of Theoretical Principles of Radio Engineering of the Moscow Order of Lenin Aviation Institute imeni Sergo Ordzhonikidze)

SUBMITTED: May 16, 1958 (initially)
June 16, 1958 (after revision)

Card 3/3

Remarks

term "ploskiy perekhod" (junction) which should be called "ploskostnyy perekhod". Further, they recommend some changes in the selection of symbols for designating transistor and diode parameters.

ASSOCIATION: Moskovskiy aviatsionnyy institut imeni Sergo Ordzhonikidze (Moscow Aviation Institute imeni Sergo Ordzhonikidze)

SUBMITTED: February 21, 1959

SAMOYLENKO, V.I.

PHASE I BOOK EXPLOITATION SOV/5194

Moscow. Aviatsionnyy institut im. Sergo Ordzhonikidze

Primeneniye poluprovodnikovykh priborov v aviatsionnykh radiotekhnicheskikh ustroystvakh; sbornik statey (Use of Semiconductor Devices in Aviation Radio-Engineering Installations; Collection of Articles) Moscow, Oborongiz, 1960. 100 p. (Series: Its: Trudy, vyp. 128) 7,650 copies printed.

Sponsoring Agencies: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR; Moskovskiy ordena Lenina aviatsionnyy institut imeni Sergo Ordzhonikidze.

Ed. (Title page): I. S. Gonorovskiy, Doctor of Technical Sciences, Professor; Managing Ed.: A. S. Zaymovskaya, Engineer; Ed. (Inside book): S. I. Bumshteyn, Engineer; Tech. Ed.: L. A. Garnukhina.

PURPOSE: This collection of articles is intended for scientific and technical personnel concerned with the utilization of semiconductor devices in radio engineering.

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20888

S/535/60/000/128/001/008
E036/E135

The p—n Junction Capacitance

account. The author discusses not only simple junctions but junctions included in transistors. Thus the diffusion capacitance associated with current carriers in the base region is also taken into account. At frequencies higher than the cut-off frequency the diffusion capacitance can be neglected because the time for diffusion of carriers from emitter to collector is too long compared to the period of oscillation. In the absence of emitter current only the saturation current of the junction need be considered. The origin of this current is outlined qualitatively as well as the change of current with applied voltage. This is not amenable to engineering calculation at present. Some typical values of capacitance change with current are quoted for Russian transistors and an estimate is made of temperature stability of the capacitance due to current changes with temperature which gives $\Delta C/C = 10^{-5}$ per degree, i.e. it is effectively stable. If the junction is acting as a rectifier or detector the bias is of the order of the amplitude of the high frequency oscillations and the capacitance is then a function of the amplitude of these

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S/535/60/000/128/001/008
E036/E135

The p—n Junction Capacitance

oscillations when they are large. It is necessary to consider whether the generator is a current or voltage generator. An expression is derived for capacitance as a function of the amplitude of the sinusoidal voltage and shows that the capacitance increases with increasing voltage. A simple calculation shows that diffusion processes can be neglected and thus capacitance is independent of frequency; up to 500 Mc/s this has been shown to hold experimentally. At high frequencies the parallel resistance can be neglected and thus gives high Q's. The p—n junction is thus very stable both with temperature and frequency changes. Various applications are briefly listed: amplitude and phase modulators, parametric amplifiers, etc.
There are 1 figure and 4 references: 1 Soviet and 3 non-Soviet.

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S/535/60/000/128/001/008
E036/E135

The p—n Junction Capacitance

English Language References:
Ref.2: W. Shockley: Theory of Electronic Semiconductors. (Russian translation). Moscow, 1953.
Ref.3: R.L. Pritchard: Frequency Variation of Junction—transistor Parameters. PIRE, 1954, No.5.
Ref.4: W. Shockley: Theory of Junction in Semiconductors and in p—n Junction Transistors. Bell System Technical Journal, 1950, No.29.

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20891

S/535/60/000/128/005/008
E036/E135

(also 1144, 1154)

AUTHORS: Samoylenko, V.I., Candidate of Technical Sciences, and Shestopalov, A.M., Engineer

TITLE: Some Questions Concerning Parametric Amplification Using p—n Junction Capacitance

PERIODICAL: Moscow. Aviatsionnyy institut. Trudy, No.128, Moscow, 1960. Primeneniye poluprovodnikovykh priborov v aviatsionnykh radiotekhnicheskikh ustroystvakh; sbornik statey, pp. 64-73

TEXT: In previously published work (Refs. 1 and 4) parametric amplification using resonant circuits was considered. In the present paper the authors consider the uses of voltage divider and bridge type circuits for amplification. The voltage divider circuit is shown in Fig.1. The high frequency source voltage is U_ω which is in series with the p—n junction capacitance C and the resistance R_1. A detector with a load R_H is connected across R_1. The capacitance C is varied at a comparatively low frequency by the voltage U_{BX}. The junction is

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E036/E135

Some Questions Concerning Parametric Amplification Using p—n Junction Capacitance

reverse biased by the voltage E_{CM}. The output voltage, amplitude modulated, appears across R_H. Power and current gain are possible but not voltage gain. This simple circuit is then analyzed to obtain expressions for voltage, current and power gain. The current and power gain in this circuit for quoted parameters are 40 and 10. An alternative, simpler form of the circuit is given in Fig.2; here the p—n junction (C) is fed from a high frequency current generator. A similar analysis is carried out in this case, an ideal detector also being assumed. Shunting of the junction by the detector is taken into consideration. In this circuit the maximum power gain is 1/4 the ratio of the input resistance of the circuit to the load resistance, compared to 1/16 of this ratio in the first circuit. In Fig.4 the bridge circuit amplifier with a p—n junction capacitance is shown, in which the high frequency is applied through the small capacitance C. The reverse biases are applied to the four p—n junctions C through the potentiometer R_1. The signal to be amplified is

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Some Questions Concerning Parametric Amplification Using p—n Junction Capacitance

applied to the same diagonal as the high frequency circuit through the coil L. The output is taken from the other diagonal. The output voltage is calculated using a simple equivalent circuit. The signal upsets the balance of the bridge to give rise to the output voltage. As for the other circuits no voltage gain is obtained but the power gain is 1/4 the ratio of input to output resistance and the current gain 1/2 this ratio. A larger voltage may be applied than in the other circuits, 2-3 volts, and a further advantage is that a voltage appears at the output only when an input signal is present. In the analysis it is assumed that

$$C = C_{KO}\left(\frac{\varphi_K}{U + \varphi_K}\right)^n$$

where U is the applied voltage and φ_K the voltage across the junction at zero applied volts and $n = 1/2$. Values of n in excess of 1/2 would improve the performance of the circuits. There are 5 figures and 4 references: 3 Soviet and 1 English.

Card 3/5

S/535/60/000/128/005/008
E036/E135

Some Questions Concerning .....

Ref.4: .H. Urkowitz, A ferroelectric amplifier. Journal of the Franklin Institute, 1958, No. 12.

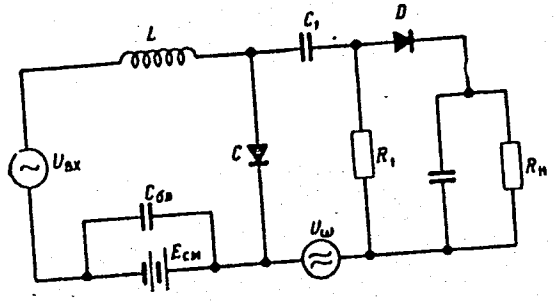

Fig.1

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E036/E135

Some Questions Concerning .....

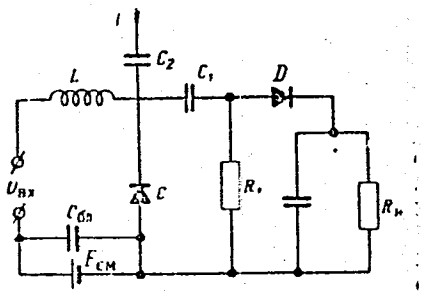

Fig. 2

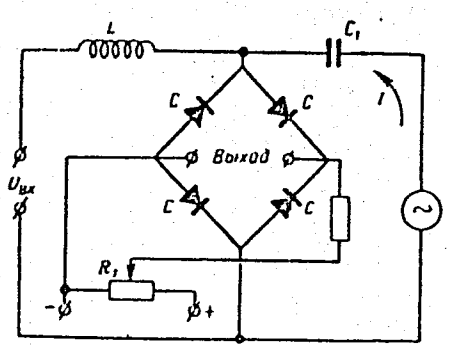

Fig. 4

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9.2560 (1139, 1154, 1159, 1161)

S/109/60/005/010/021/031
E033/E415

AUTHOR: Samoylenko, V.I.

TITLE: Level Discriminator Using p-n Junction Capacity

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.10, pp.1720-1725

TEXT: The article describes a semiconductor gating (discriminator) circuit, which gives a rectified output when the input signal (pulsed or d.c.) voltage lies between two particular adjustable levels. The input voltage controls the amount of de-tuning of an L-C circuit (relative to a frequency w_o from an oscillator) by changing the capacity of a p-n junction transistor coupled into the tuned circuit. A voltage appears at the output only when the amplitude of the oscillation across the tuned circuit exceeds a determined value ($U_k \geqslant E$), i.e. when the input voltage is such that the circuit is tuned within two limits, one on either side of resonance w_o. The basic "principle" diagram is given in Fig.1. If V_o is the input voltage at which the resonant circuit is tuned to the oscillation frequency w_o and the Q factor of the circuit is high, then

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Level Discriminator ...

$$\frac{\Delta V_0}{V_0+\varphi_K} = \pm 2\frac{\frac{C_0}{C_p}+1}{Q}\sqrt{\left(\frac{QU_0}{E}\right)^2-1}, \qquad (7)$$

where $\Delta V_0 = V - V_0$, is the increment of the input voltage V at which the amplitude of the oscillation in the circuit becomes equal to the set reference voltage E. C_0 is the tuned circuit capacitor (without the capacity of the p-n junction);

$$C_p = k^2 C_{K0}\sqrt{\frac{\varphi_K}{V_0+\varphi_K}}$$

where k is the coupling factor connecting the p-n junction capacity into the tuned circuit, C_{K0} is the p-n junction capacity with no bias voltage, φ_K is the contact potential difference of the p-n junction. From Eq.(7), the relative characteristic of the discriminator (of the gate) ΔU is obtained

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Level Discriminator ...

$$\frac{\Delta U}{V_0} = 4\frac{\frac{C_0}{C_p}+1}{Q}\sqrt{\left(\frac{QU_0}{E}\right)^2 - 1.} \qquad (8)$$

in which φ_K is neglected as it is small compared to the control voltage V. Eq.(8) determines the upper and lower limits of the voltages passed by the gate. The optimum values of C_o and L (the circuit inductance) are given by

$$C_0 = \left(\frac{Q}{2\sqrt{2}}\frac{\Delta U}{V_0} - 1\right)C_p. \qquad (11)$$

$$L = \frac{1}{\omega_0^2(C_0+C_p)}. \qquad (12)$$

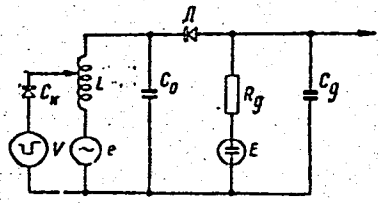
The "gate width" (Eq.(8)) depends on Q and hence on the a.c. resistance r_K of the p-n junction which is temperature-sensitive. To reduce the dependence of the gate width on temperature, it is necessary to reduce the Q factor, the characteristic impedance of the oscillatory circuit σ, the

Level Discriminator ...

coupling factor k and to select semiconductors with minimum dependence on temperature. A full circuit diagram is given and described. The oscillation frequency was 16 Mc/s. The circuit was tested under pulsed operation and was satisfactory with input signal pulses of duration greater than 1.5 microseconds and repetition frequencies up to 10 kc/s. The gate width was 6 to 8% of the pulse amplitude and the output signal amplitude was about 5 volts. Acknowledgments are expressed to B.I.Krasnov for his assistance in the experimental work. There are 2 figures and 1 Soviet reference.

SUBMITTED: December 19, 1959

Fig.1.



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Level Discriminator ...

S/109/60/005/010/021/031
E033/E415

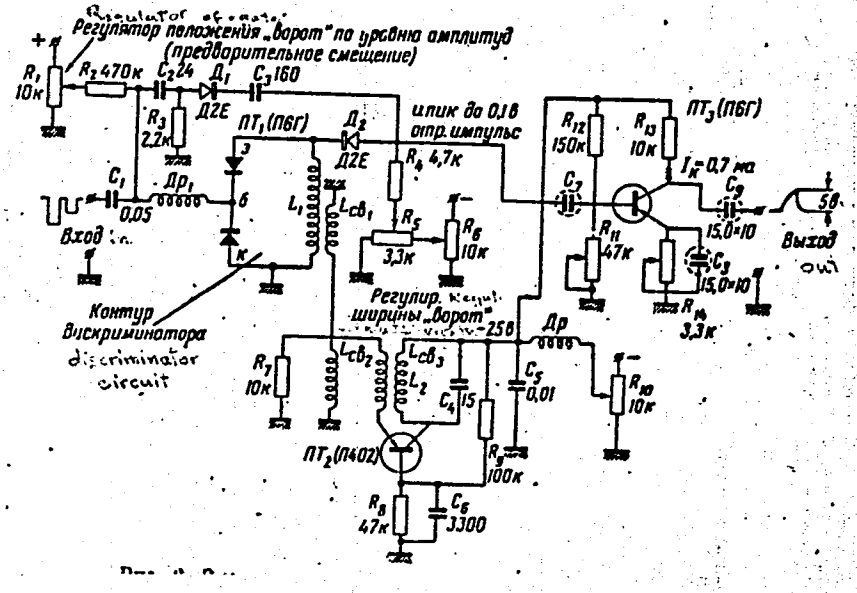

Fig.2. Legend: Block diagram of the test apparatus.

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ALEKSANDROV, B.I.; MISHIN, P.A.; DROZD, S.N.; SAMOYLENKO, V.I.

Effect of heat treatment and of the dimensional factor on the strength of bolts. Sbor.trud.Inst.mash.i avtom.AN BSSR no.2:65-80 '61. (MIRA 15:3)

(Bolts and nuts--Testing)

ALEKSANDROV, B. I., kand. tekh. nauk.; SAMOYLENKO, V. I., mladshii nauchnyi sotrudnik.

Influence of heat treatment and measuring factor on the strength of bolts.
Acta techn Hung 35/36:331-338 '61

36941
S/142/61/004/006/002/017
E192/E382

9,2572
AUTHORS: Samoylenko, V.I. and Zlochevskiy, Ye.M.

TITLE: Theory of dynamic processes in a parametron based on the capacitance of an n-p-junction

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, vol. 4, no. 6, 1961, 640 - 652

TEXT: The system considered is illustrated in Fig. 1 and the solution of the equation describing its operation is based on the asymptotic methods developed by N.N. Bogolyubov and Yu.A. Mitropol'skiy (Asymptotic methods in the theory of non-linear oscillations (Asimptoticheskiye metody v teorii nelineynykh kolebaniy), Gosfizmatizdat, 1958 - Ref. 5). The capacitance C_K in Fig. 1 is the differential capacitance of an n-p junction which can approximately be expressed as:

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Theory of dynamic processes ....

$$C_K = C_0 \frac{1}{1 + \frac{1}{2}\frac{U}{E + \varphi_K}} \qquad (4)$$

where $C_0 = C_{KO}\sqrt{\frac{\varphi_K}{\varphi_K + E}}$ which represents the capacitance at the operating point,

C_{KO} is the capacitance in the absence of an external voltage,
φ_K is the contact potential difference,
U is the excitation voltage across the capacitance, and
E is the biasing voltage at the operating point.

It is shown that the second approximationto the solution of the

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characteristic equation of the system is given by:

$$\xi = a\cos\left(\frac{\nu}{2}t + \Theta\right) + \frac{a^2}{6}\cos(\nu t + 2\Theta) + \frac{\xi_o}{3}\sin(\nu t - 2\Theta) \qquad (6)$$

where $\xi = U/(E + \varphi_K)$, $\xi_o = U_o/(E + \varphi_K)$, $\delta = r/L$ and $\omega = 1/(\sqrt{LC_o})$. The amplitude α and the phase angle Θ, which are "slowly"-changing functions of time, can be found from the following equations:

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$$\begin{cases} \dfrac{da}{dt} = -\dfrac{\delta a}{2} + \dfrac{\xi_0 \omega^2}{4\nu} a \cos 2\Theta \\ \dfrac{d\Theta}{dt} = \omega - \dfrac{\nu}{2} + \dfrac{3}{8}\dfrac{\omega^2 a^2}{\nu} - \dfrac{\xi_0 \omega^2}{4\nu} \sin 2\Theta \end{cases} \quad (7).$$

The above equations are analyzed for the steady state, when $d\alpha/dt = d\Theta/dt = 0$ and the results are shown in some graphs. Since Eq. (7) cannot be solved analytically, they are evaluated approximately for a number of special cases by employing the method of numerical integration. It is concluded from the analysis that, unlike in a normal oscillator, the shape and duration of the transient processes in a parametron depend not only on amplitude but also on the phase of the oscillations in the circuit at the instant of applying the pump signal.

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For certain initial conditions the amplitude of the oscillations in the circuit may decrease and later increase. The duration of the transient depends on the initial conditions as well as on the quality factor of the circuit and the amplitude of the pump signal. The duration of the transient can amount to tens and even hundreds of cycles of the pump signal under normal conditions. The duration can be arbitrarily large under certain zero initial conditions. In general, the amplitude and the phase transient is oscillatory. Three stable states can exist in a parametron under certain conditions; absence of oscillations and presence of oscillations with two possible phase states.
There are 9 figures.

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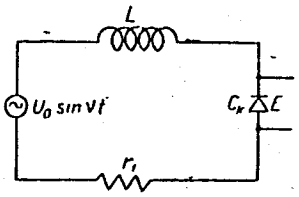
Theory of dynamic processes ....

Fig. 1:



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SAMOYLENKO, V. I.

Effect of a transistor detector on the characteristics of an oscillatory circuit. Trudy MAI no.150:11-22 '62.
(MIRA 15:10)

(Electric networks) (Transistors)

SAMOYLENKO, V. I.; FINOGENOV, B. S.

Steady-state conditions in a two-stage parametric amplifier containing a nonlinear p-n junction capacitance. Trudy MAI no.150:39-61 '62. (MIRA 15:10)

(Parametric amplifiers)

SAMOYLENKO, V. I.; MEZENTSEV, I. I.

Heat factors in the operation of transistor devices. Trudy MAI no.150:72-92 '62. (MIRA 15:10)

(Transistors)

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AUTHOR: Samoylenko, V.I.

TITLE: Linearization of sawtooth voltage by semiconductor devices

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, v. 5, no. 5, 1962, 645 - 646

TEXT: It is necessary that $S = dU/dt = \text{constant}$, when charging a capacitance from a voltage source, if the voltage across the condenser U is to rise linearly. If the capacitance C is charged from a source E through a resistance R it is necessary that the capacitance obey the relationship:

$$C = \frac{E - U}{SR} \qquad (1) .$$

Such a nonlinear capacitance can be provided by an n-p semiconductor junction. A circuit of this type is illustrated in Fig. 2, where C_o is a fixed capacitance and C_K is the capacitance of the diode. By using the known expression for the capacitance of the

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Linearization of ....

diode it is shown that:

$$\frac{dU}{dt} = \frac{E-U}{R\left(C_0 + C_{K\min}\sqrt{\frac{E+\varphi_K}{U+\varphi_K}}\right)}, \qquad (2)$$

where

$$C_{K\min} = C_{K_0}\sqrt{\frac{\varphi_K}{E+\varphi_K}}. \qquad (2a)$$

By integrating Eq. (2), a number of curves showing U/E as a function of t/τ (where $\tau = R(C_o + C_{K\ min})$ are plotted for various values of $a = C_{K\ min}/C_o$. The curves show that for a between 0.15 and 0.2 the linearity of the output voltage is greatly improved as compared with an exponential waveform corresponding to $a = 0$. Thus, for example, the relative nonlinearity coefficient, which is 15% at $a = 0$, is reduced to 3% at $a = 0.2$. There are 3 figures.

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